

# PATENT ABSTRACTS OF JAPAN

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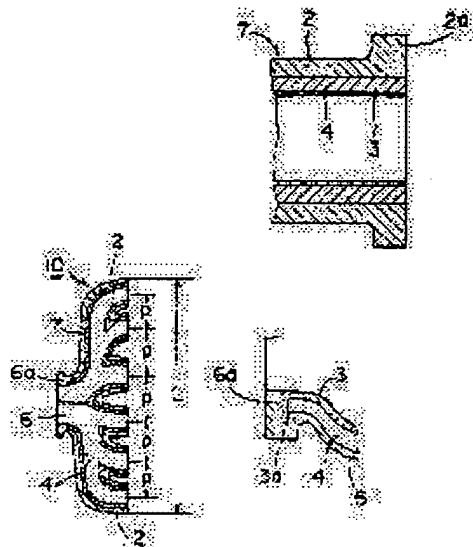
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## (54) EXHAUST MANIFOLD FOR INTERNAL-COMBUSTION ENGINE

### (57)Abstract:

**PURPOSE:** To ensure the concentricity between a cast iron section and a metal pipe in an cast iron exhaust manifold, by disposing a heat-resistant metal pipes in each inner wall section of the manifold through the intermediary of a heat insulating layer and by casting an end flange of the metal pipe at one end of a manifold pipe.

**CONSTITUTION:** A heat-resistant metal pipe 3 is disposed in each inner wall part of a cast iron section 7 of an exhaust manifold 10 through the intermediary of a heat-insulating material 4. Further, an end flange 3a of the metal pipe 3 is cast at a flange 6a at one end of a manifold pipe 6, and the heat-insulating material is opened to the outside at one end of each branch pipe 2. With this arrangement the heat-insulating material 4 deforms to serve as a buffer material for the solidification and contraction of the cast iron section after casting, and therefore, a variation in pitch of the metal pipe is prevented, and further, it is possible to prevent the cast iron section from making into direct contact with the metal pipe.



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